

No.

8400024



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Western Plant Breeders, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Apex 83'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 31st day of December in the year of our Lord one thousand nine hundred and eighty-six.

Attest

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO. 0581-0005

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

12/10/85
 #15
 12/10/85
 23

1. NAME OF APPLICANT(S) WESTERN PLANT BREEDERS, INC. (A MARYLAND CORPORATION) Western Plant Breeders, Inc. WPA ACQUISITION INC.		2. TEMPORARY DESIGNATION WRP-8-30	3. VARIETY NAME Apex 83 <i>ex</i> <i>As per letter dated 7/26/84</i>
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 1918 VAN BUREN P.O. Box 1110 Phoenix, Arizona 85001 ATT: MR. ROBERT HUNTINGTON		5. PHONE (Include area code) (602) 257-1223	FOR OFFICIAL USE ONLY VPVO NUMBER 8400024

6. GENUS AND SPECIES NAME Triticum aestivum	7. FAMILY NAME (Botanical) Gramineae	FILING DATE 12/16/83 TIME 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.
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8. KIND NAME Wheat	9. DATE OF DETERMINATION April 1, 1981	FEE RECEIVED AMOUNT FOR FILING \$ 1,000 DATE 12/16/83
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10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation	FEE RECEIVED AMOUNT FOR CERTIFICATE \$ 500. ⁰⁰ DATE November 20, 1986
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11. IF INCORPORATED, GIVE STATE OF INCORPORATION Arizona	12. DATE OF INCORPORATION December 1, 1977
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13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
 Dan R. Biggerstaff
 P.O. Box 1409
 Bozeman, Montana 59715
 (406) 587-1218

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)	c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement	d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)
 Yes (If "Yes," answer items 16 and 17 below) No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified
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18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?
 Yes (If "Yes," give names of countries and dates)
 No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?
 Yes (If "Yes," give names of countries and dates)
 No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.
 The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.
 Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT <i>Dan R. Biggerstaff</i>	DATE September 15, 1983
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SIGNATURE OF APPLICANT	DATE 1
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Attachment to: APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

14. A. Apex 83 (temporary designation: WRP-8-30) was selected by Western Plant Breeders, Inc. as an F_2 plant in 1977 from the male sterile facilitated recurrent selection (MSFRS) F_2 population (MSFRS Wheat Germplasm CC A-1977) released by Rex K. Thompson at the University of Arizona, Mesa Station. An F_3 row was grown in Conrad, Montana in the summer of 1977. A plant selection from this row was grown as an F_4 plot at Chandler, Arizona in 1978. Twenty heads from this F_4 plot were selected and grown as head rows at Conrad, Montana during the summer of 1978. Twelve nonsegregating rows were bulked and designated WRP-8-30. This bulk was maintained as a pure line and yield tested in North Dakota and South Dakota in 1979, 1980, 1981, and 1982. Apex was head rowed at Chandler, Arizona in 1981 and initial Breeders seed was produced at Conrad, Montana during the summer of 1981.

B. Apex 83 is a novel, photo-insensitive, semi-dwarf, hard, red spring wheat that is most similar to the varieties Pondera and WestBred Challenger. There are several differences between these varieties. Apex 83 consistently heads about two days earlier than WestBred Challenger and about four days earlier than Pondera. (See attached table) Apex 83 has mostly square glume shoulders, WestBred Challenger has elevated glume shoulders, and Pondera has oblique glume shoulders. Pondera has dark, cream-colored chaff while both Apex 83 and WestBred Challenger have white chaff. Apex 83 has a more pronounced twisting of the flag leaf than WestBred Challenger. Apex 83 kernels are ovate while those of WestBred Challenger are more elliptical.

Wheat Application No. 8400024, 'Apex 83'

Attachment to: APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

Addendum to Section 14, Exhibit A:

Apex 83 is a uniform and stable cultivar of hard red spring wheat. It has been observed in research plots and commercial production fields for more than ten generations. Two variants have been observed in this cultivar: the first is a tall variant (ten centimeters taller) at a frequency of less than 1 in 10,000; the second variant is a slightly taller (5-6 centimeters) plant that is 5-7 days later heading than Apex 83, at a frequency of less than 1 in 50,000.

Heading Dates (days from January 1) of Apex 83, WestBred Challenger,
and check varieties in Montana Agricultural Experiment
Station Yield Trials. (1)

<u>Locations</u>	<u>Year</u>	<u>Apex 83</u>	<u>WestBred Challenger</u>	<u>Pondera</u>	<u>Newana</u>
Average of 7 Montana Trials	1983	172.9	174.6	176.2	179.7
Average of 8 Montana Trials	1984	174.1	175.9	177.8	181.1

1 Table added December 1985 in response to June 24, 1985 letter from PVP office.

Height (in inches) of WestBred Challenger, Apex⁸³, and check varieties in Western Plant Breeders' Trials.

<u>Location</u>	<u>Year</u>	<u>WestBred Challenger</u>	<u>Apex 83</u>	<u>WestBred 906R</u>	<u>Era</u>	<u>0laf</u>	<u>Butte</u>
Brookings, S.D.	1979	28	27	26	27	--	--
	1980	30	30	29	30	32	38
	1981	30	29	29	30	31	37
Fargo, N.D.	1979	29	29	28	30	--	--
	1981	30	30	30	31	33	38
	1982	29	28	--	29	30	36

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11. HEAD:

1 Density: 1 = LAX 2 = DENSE

2 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

4 Awedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

1 0 CM. LENGTH

1 3 MM. WIDTH

12. GLUMES AT MATURITY:

2 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

2 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

4 Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

1 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

1 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

3 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

1 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

1 Check: 1 = ROUNDED 2 = ANGULAR

1 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

2 Brush: 1 = NOT COLLARED 2 = COLLARED

- Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

Not tested

3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

0 7 MM. LENGTH

0 3 MM. WIDTH

4 3 GM. PER 1000 SEEDS

17. SEED CREASE:

1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

2 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

2 STEM RUST (Races) 2 LEAF RUST (Races) 2 STRIPE RUST (Races) 1 LOOSE SMUT

2 POWDERY MILDEW 0 BUNT 0 OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

1 SAWFLY 1 APHID (Bydv.) 1 GREEN BUG 0 CEREAL LEAF BEETLE

0 OTHER (Specify) _____ HESSIAN FLY RACES: 0 GP 0 A 0 B 0 C 0 D 0 E 0 F 0 G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	0laf	Seed size	0laf
Leaf size	0slo	Seed shape	Centa
Leaf color	0slo	Coleoptile elongation	0laf
Leaf carriage	0laf	Seedling pigmentation	0laf

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

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Attachment to: APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

- D. Apex 83 is well adapted to the hard, red spring wheat areas of North Dakota and South Dakota. Yields of Apex 83 average about the same as Era; however, it has better test weight than either Era or Olaf. Apex 83 averages one-half percent higher protein than Era. Its leaf rust resistance seems to be equal to Era's and its stem rust resistance has varied from TR to 40 MS depending on the severity of infection. Apex 83 is quite tolerant to tan spot. The milling and baking qualities of Apex 83 are similar to Era's. Apex 83 is 15 to 20 cm shorter than Butte and much easier to thresh.

See attached tables.

Yield in bushels per acre of WestBred Challenger, Apex, and check
 varieties in Western Plant Breeders' Trials. §3

<u>Location</u>	<u>Year</u>	<u>WestBred Challenger</u>	<u>Apex §3</u>	<u>WestBred 906R</u>	<u>Era</u>	<u>Olaf</u>	<u>Butte</u>
Brookings, S.D.	1979	25.0	27	25	24.0	--	--
	1980	55.0	49	47	41.0	36	41
	1981	51.5	51	46	47.5	50	59
	1982	34.5	30	--	28.0	25	28
Fargo, N.D.	1979	43.0	44	40	44.0	--	--
	1981	52.0	53	52	56.0	56	56
	1982	41.0	46	--	41.0	41	57

Pounds per bushel of WestBred Challenger, Apex, and check varieties in Western Plant Breeders' Trials.

<u>Location</u>	<u>Year</u>	<u>WestBred Challenger</u>	<u>Apex \$3</u>	<u>WestBred 906R</u>	<u>Era</u>	<u>01af</u>	<u>Butte</u>
Brookings, S.D.	1979	54.0	56.0	53.0	52.0	--	--
	1980	57.0	57.0	54.5	51.0	54.0	58.0
	1981	56.0	58.0	56.0	55.5	54.5	57.5
Fargo, N.D.	1979	58.0	59.0	56.0	57.0	--	--
	1981	57.0	56.0	53.5	56.0	54.0	56.5
	1982	60.5	60.5	61.0	60.0	59.0	60.5

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Percent protein of WestBred Challenger, Apex, ⁸³ and check varieties in Western Plant Breeders' Trials.

<u>Location</u>	<u>Year</u>	<u>WestBred Challenger</u>	<u>Apex 83</u>	<u>WestBred 906R</u>	<u>Era</u>	<u>Olaf</u>	<u>Butte</u>
Brookings, S.D.	1979	15.3	15.2	16.1	14.3	--	--
	1980	14.0	13.7	15.3	14.8	16.3	15.6
	1981	14.9	14.8	16.1	14.5	15.9	15.4
Fargo, N.D.	1979	15.3	15.2	16.2	14.0	--	--
	1981	15.0	15.1	15.8	14.7	16.1	15.8
	1982	16.7	15.9	17.1	16.5	16.2	14.7

§3
 Milling and baking quality of WestBred Challenger and Apex₄ compared to commonly grown varieties grown in Western Plant Breeders' Trials at Fargo, North Dakota and Brookings, South Dakota.

	<u>WestBred Challenger</u>	<u>Apex §3</u>	<u>WestBred 906R</u>	<u>Era</u>	<u>Olaf</u>
<u>Test Weight</u>	Very Good	Very Good	Fair-Good	Very Good	Fair-Good
<u>1000 Kernel Weight</u>	Good	Good	Excellent	Poor-Fair	Good
<u>Wheat Protein</u>	Fair	Fair	Very Good	Poor	Good
<u>Flour Extraction</u>	Excellent	Very Good	Fair-Good	Good	Fair
<u>Milling Performance</u>	Very Good	Good	Fair	Good	Good
<u>Mixo. Absorption</u>	Good	Good	Fair-Good	Fair-Good	Good
<u>Mixo. Pattern</u>	Excellent	Excellent	Good	Fair	Very Good
<u>Bake Absorption</u>	Good	Good	Good	Good	Good
<u>Mixo. Time</u>	Very Long	Very Long	Medium	Medium	Medium
<u>Loaf Volume</u>	Fair-Good	Fair-Good	Good	Good	Good

STATE OF ARIZONA)
) ss.
County of Maricopa)

ASSIGNMENT

WHEREAS, WESTERN PLANT BREEDERS, INC., an Arizona corporation (a/k/a) WESTERN PLANT BREEDERS), having its principal place of business at Phoenix, Arizona, has applied for the following Certificate of Protection which is pending in the Plant Variety Protection Office of the Secretary of Agriculture:

Certificate No. 8400024 Apex 83 Common Wheat

WHEREAS, WPB ACQUISITION INC., a Maryland corporation, having its principal place of business in Hayward, California, is desirous of acquiring said Plant Variety Protection Certificate; and

WHEREAS, WESTERN PLANT BREEDERS, INC., states that it has applied for the above Certificate and that this transfer does not violate any applicable ruling or order of any court or agency of competent jurisdiction.

NOW, THEREFORE, for valuable consideration, receipt of which is hereby acknowledged, WESTERN PLANT BREEDERS, INC. does hereby assign and set over to WPB ACQUISITION INC., all of the right, title and interest of WESTERN PLANT BREEDERS, INC., in and to the variety of common wheat named:

"Apex 83"

together with all goodwill associated with that variety and that name, and together with all rights under and to that Certificate of Plant Variety Protection, No. 8400024, currently pending in the office of the Secretary of Agriculture of the United States of America.

WESTERN PLANT BREEDERS, INC.

By Albert E. Carleton
Albert E. Carleton, President

On this 30th day of September, 1985, before me, appeared Albert E. Carleton, to me personally known, who, being by me duly sworn, did say that he is the president of WESTERN PLANT BREEDERS, INC., an Arizona corporation, and that the foregoing Assignment is on behalf of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Phoenix, Arizona the day and year last above written.

Gyonna M. Bolton aka Gyonna M. Smith
Notary Public

My Commission Expires:

November 3, 1986